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1991

EPA Superfund
Record of Decision Amendment:

BRODERICK WOOD PRODUCTS
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DENVER, CO
09/24/1991

Text:
INTERIM
ACTIONS/SOURCE CONTROL (OU 1) AND FINAL REMEDY (OU 2). IN JUNE 1988, EPA ISSUED A ROD FOR OU 1 TO ADDRESS SOURCE CONTROL AND THE DIRECT CONTACT EXPOSURE PATHWAY. THE MAJOR COMPONENTS OF THE JUNE 1988 ROD WERE RESTRICTION OF SITE ACCESS, EXCAVATION AND ON-SITE INCINERATION OF SLUDGE, STOCKPILING OR ON-SITE INCINERATION OF VISIBLY CONTAMINATED SOILS BENEATH THE IMPOUNDMENTS, AND TREATMENT OF WATER IN THE IMPOUNDMENT AND BUILDINGS. BASED ON NEW TECHNICAL DATA AND COST INFORMATION OBTAINED SUBSEQUENT TO THE JUNE 1988 ROD, EPA HAS RECONSIDERED ITS DECISION TO EMPLOY ON-SITE INCINERATION AS A SOURCE CONTROL MEASURE FOR OU 1. NEW DATA EVALUATED BY EPA INCLUDED TECHNICAL DATA ON THE INTERACTION OF CONTAMINANTS AND GROUNDWATER RECEIVED FROM CONTINUING RI/FS ACTIVITIES FOR OU 2 AND COST INFORMATION FOR ON-SITE INCINERATION RECEIVED DURING REMEDIAL DESIGN FOR OU 1. OTHER COMPONENTS OF THE JUNE 1988 ROD ARE NOT AFFECTED BY THIS NEW INFORMATION.
THE SELECTED REMEDY PRESENTED IN THIS ROD AMENDMENT ADDRESSES THE SLUDGE FROM THE IMPOUNDMENTS THAT CONTRIBUTE TO CONTAMINATION OF ENVIRONMENTAL MEDIA AT THE BWP SITE. THE SLUDGE CONTAINS ELEVATED CONCENTRATIONS OF PENTACHLOROPHENOL (PCP), POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS), VOLATILE ORGANIC COMPOUNDS, AND CHLORINATED DIOXINS AND FURANS. INHALATION AND INGESTION OF, AND DIRECT CONTACT WITH THESE CONTAMINANTS HAVE BEEN DETERMINED TO POSE THE PRINCIPAL THREAT TO HUMAN HEALTH FROM THE SLUDGES. REMEDIATION OF THE SLUDGE IS INTENDED TO MITIGATE THESE EXPOSURE PATHWAYS.

OU 2 WILL ADDRESS THE FINAL REMEDY FOR THE SITE AND INCLUDES CONTAMINATED SOILS, SURFACE WATER AND GROUND WATER, AND BUILDINGS, VESSELS AND DRUMS. THE ROD FOR OU 2 IS EXPECTED SOME TIME LATER IN 1991.

THE NEW REMEDIAL ACTION FOR INTERIM ACTION/SOURCE CONTROL (OU 1) SELECTED BY EPA FOR TREATMENT OF THE SLUDGES INVOLVES OFF-SITE RECLAMATION OF THE USEFUL COMPONENTS OF THE SLUDGE, AND INCINERATION AND DISPOSAL OF THE RESIDUES. THE MAJOR COMPONENTS OF THE SELECTED REMEDY INCLUDE;

* REMOVAL AND PREPARATION OF LIQUID AND SOLID SLUDGES FROM TEMPORARY STORAGE CELLS WITHIN THE IMPOUNDMENTS AREA;

* TRANSPORTATION OF THE SLUDGES AND OIL COLLECTED FROM THE SLUDGES TO A PERMITTED RECYCLING FACILITY;

* RECLAMATION OF CREOSOTE FOR USE AT OTHER WOOD TREATING FACILITIES; AND

* TREATMENT VIA INCINERATION AND DISPOSAL OF RESIDUES BY THE RECYCLER IN A PERMITTED LANDFILL.

DECLARATION OF STATUTORY DETERMINATIONS

THE NEWLY SELECTED REMEDY EMBODIED IN THIS ROD AMENDMENT IS PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT, COMPLIES WITH FEDERAL AND STATE REQUIREMENTS THAT ARE LEGALLY APPLICABLE OR RELEVANT AND APPROPRIATE TO THE REMEDIAL ACTION, AND IS COST-EFFECTIVE. THIS REMEDY UTILIZES PERMANENT SOLUTIONS AND ALTERNATIVE TREATMENT OR RESOURCE RECOVERY TECHNOLOGIES, TO THE MAXIMUM EXTENT PRACTICABLE, AND SATISFIES THE STATUTORY PREFERENCE FOR REMEDIES THAT EMPLOY TREATMENT THAT REDUCES TOXICITY, MOBILITY, OR VOLUME AS A PRINCIPAL ELEMENT.

BECAUSE THIS INTERIM REMEDY WILL RESULT IN HAZARDOUS SUBSTANCES REMAINING ON-SITE ABOVE HEALTH-BASED LEVELS, A REVIEW OF THIS REMEDIATION WILL BE CONDUCTED WITHIN FIVE YEARS AFTER COMMENCEMENT OF THE REMEDIAL ACTION TO ENSURE THAT THE REMEDY CONTINUES TO PROVIDE ADEQUATE PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT.

US ENVIRONMENTAL PROTECTION AGENCY DATE: 09/24/91
REGIONAL ADMINISTRATOR, REGION VIII

#INT
I. INTRODUCTION

THIS DOCUMENT SUMMARIZES THE INFORMATION THAT FORMS THE BASIS FOR EPA'S SELECTION OF A NEW REMEDIAL ACTION FOR TREATMENT OF SLUDGES FROM THE IMPOUNDMENTS AT THE BWP SITE. THIS ROD AMENDMENT WILL BECOME PART OF THE ADMINISTRATIVE RECORD PURSUANT TO SECTION 300.825(A)(2) OF THE NCP. THE ORIGINAL ROD WHICH WAS SIGNED JUNE 30, 1988 IS ATTACHED HERETO AND MADE A PART HEREOF AS EXHIBIT 1, AND SHOULD BE REFERRED TO FOR FURTHER INFORMATION REGARDING THE SITE DESCRIPTION, HISTORY OF OPERATIONS, ENFORCEMENT ACTIVITIES AND COMMUNITY PARTICIPATION PRIOR TO THE JUNE 1988 ROD, CHARACTERISTICS OF THE SLUDGE CONTAMINANTS, AND RISKS ASSOCIATED WITH THE BWP SITE.

IN JUNE 1988, EPA ISSUED A ROD FOR THE BWP SITE BASED ON THE PHASE I AND II RI/FS EFFORTS. THE JUNE 1988 ROD IDENTIFIED INTERIM ACTIONS TO CONTROL THE MAJOR SOURCE OF CONTAMINATION AT THE SITE AND TO ADDRESS RISKS FROM DIRECT CONTACT EXPOSURE TO SITE CONTAMINANTS (OU 1). THE MAJOR COMPONENTS OF THE JUNE 1988 ROD WERE: 1) RESTRICTION OF SITE ACCESS, 2) EXCAVATION AND INCINERATION OF IMPOUNDMENTS SLUDGES, 3) INCINERATION OR STOCKPILING OF VISIBLY CONTAMINATED SOILS FOUND BENEATH THE SLUDGES, AND 4) TREATMENT OF WATER IN THE IMPOUNDMENTS AND BUILDINGS. THESE INTERIM ACTIONS WERE SELECTED TO MEET THE REMEDIAL ACTION OBJECTIVES OF SOURCE CONTROL AND ELIMINATION OF THE DIRECT EXPOSURE PATHWAYS.

SITE ACCESS (ROD ACTION NO. 1) HAS BEEN RESTRICTED THROUGH CONSTRUCTION OF A FENCE. ROD ACTION NO. 3 WAS DEFERRED TO OU 2 WHEN IT WAS DETERMINED THAT THE VOLUME OF VISIBLY CONTAMINATED SOILS WAS SIGNIFICANTLY GREATER THAN THE VOLUME ESTIMATED IN THE PHASE II RI/FS REPORT. ROD ACTION NO. 4 WAS ALSO DEFERRED TO OU 2 BECAUSE COST EVALUATIONS CONDUCTED AS PART OF REMEDIAL DESIGN INDICATED THAT IT WOULD BE MORE COST-EFFECTIVE TO TREAT THE WATER DURING THE REMEDIAL ACTIONS FOR OU 2.

IMPLEMENTATION OF ROD ACTION NO. 2 WAS TO HAVE BEGUN IN THE FALL OF 1990. EPA DETERMINED THAT TREATMENT OF THE SLUDGES SHOULD BE DELAYED UNTIL THE ALTERNATIVES FOR TREATMENT COULD BE REEVALUATED WHEN INFORMATION PROVIDED BY ONE POTENTIALLY RESPONSIBLE PARTY (PRP) BRODERICK INVESTMENT COMPANY (BIC), AND ONGOING INVESTIGATIONS SHOWED THE COSTS OF INCINERATION HAD INCREASED SIGNIFICANTLY AND OTHER EQUALLY PROTECTIVE ALTERNATIVES APPEARED TO BE AVAILABLE.

#CPS
II. COMMUNITY PARTICIPATION SINCE THE JUNE 1988 ROD

COMMUNITY INTEREST AT THE BWP SITE GENERALLY HAS BEEN LOW, TO DATE, WITH INVOLVEMENT PRIMARILY FROM RESIDENTS AND BUSINESSES LOCATED IN THE VICINITY OF THE SITE AS WELL AS FROM STATE AND LOCAL OFFICIALS. FURTHER DETAIL OF COMMUNITY INVOLVEMENT AT THE BWP SITE IS PRESENTED IN THE RESPONSIVENESS SUMMARY OF THIS ROD AMENDMENT. THE PUBLIC PARTICIPATION REQUIREMENTS AS SPECIFIED IN CERCLA SECTION 113 (K)(2)(B)(I-V) HAVE BEEN MET AS DESCRIBED BELOW.

IN MID-JANUARY 1991, EPA PREPARED A "SUMMARY DOCUMENT - POST-ROD ACTIVITIES" (EPA, 1991) WHICH SUMMARIZED AND DESCRIBED THE DATA AND FINDINGS OF CLEANUP INVESTIGATIONS THAT LED TO A REEVALUATION OF THE SLUDGE TREATMENT REMEDY SELECTED IN THE JUNE 1988 ROD. THIS DOCUMENT WAS PLACED IN THE ADMINISTRATIVE RECORD FILES AT THE INFORMATION REPOSITORIES.

ON JANUARY 15, 1991, EPA SENT A FACT SHEET TO 162 PERSONS ON THE MAILING

LIST THAT INCLUDED RESIDENTS, BUSINESS OWNERS, AND PUBLIC OFFICIALS. THIS FACT SHEET DESCRIBED THE PROPOSED PLAN TO AMEND THE JUNE 1988 ROD FOR TREATMENT OF IMPOUNDMENT SLUDGES. THE FACT SHEET ALSO DESCRIBED OPPORTUNITIES FOR PUBLIC INVOLVEMENT INCLUDING THE PUBLIC MEETING AND THE PUBLIC COMMENT PERIOD FOR THE PROPOSED PLAN. ALSO, ON JANUARY 15, 1991, EPA PLACED A QUARTER-PAGE PUBLIC NOTICE IN THE ROCKY MOUNTAIN NEWS ANNOUNCING A PUBLIC COMMENT PERIOD FROM JANUARY 18, 1991 TO FEBRUARY 18, 1991 FOR COMMENTS ON THE PROPOSED PLAN FOR SLUDGE TREATMENT. THE NOTICE ALSO ANNOUNCED THE PUBLIC MEETING, AND INFORMED THE PUBLIC OF THE AVAILABILITY OF ALL PERTINENT INFORMATION AT THE INFORMATION REPOSITORIES.

THE PUBLIC MEETING TO DISCUSS THE NEW PROPOSED PLAN WAS HELD ON FEBRUARY 5, 1991 AT THE INN AT THE MART LOCATED NEAR THE SITE. A TRANSCRIPT OF THE MEETING WAS PREPARED FOR PLACEMENT IN THE ADMINISTRATIVE RECORD FILES AT THE INFORMATION REPOSITORIES. AT THE MEETING, WHICH WAS ATTENDED BY FIFTEEN COMMUNITY MEMBERS, ONLY ONE ORAL COMMENT WAS RECEIVED. THIS COMMENT CONCERNED POTENTIAL HEALTH EFFECTS TO CHILDREN AND ADULTS RESIDING NEAR THE SITE FROM PAST AND ONGOING EXPOSURE TO SITE CONTAMINATION. IN RESPONSE TO THIS COMMENT, EPA MET WITH SOME CONCERNED RESIDENTS ON FEBRUARY 11, 1991 TO DISCUSS POTENTIAL HEALTH EFFECTS TO PEOPLE LIVING NEAR THE SITE. IN ATTENDANCE WERE AN EPA TOXICOLOGIST, A REPRESENTATIVE OF THE AGENCY FOR TOXIC SUBSTANCES DISEASE REGISTRY (ATSDR), THE EPA REMEDIAL PROJECT MANAGER, THE EPA COMMUNITY RELATIONS COORDINATOR FOR THE SITE, AND SIX CONCERNED RESIDENTS. DURING THE PUBLIC COMMENT PERIOD FOR THE PROPOSED PLAN FOR TREATMENT OF IMPOUNDMENT SLUDGES, EPA RECEIVED WRITTEN COMMENTS ONLY FROM BIC. RESPONSES TO OFFICIAL PUBLIC COMMENTS ARE PRESENTED IN THE RESPONSIVENESS SUMMARY OF THIS ROD AMENDMENT.

THE PRESENT REPOSITORY LOCATIONS HOUSING THE ADMINISTRATIVE RECORD FILE AND HOURS OF AVAILABILITY ARE LISTED BELOW:

EPA SUPERFUND RECORD CENTER
999 18TH STREET
DENVER, CO 80202
(303) 293-1807
HOURS:
M, TH 1:00 PM - 8:00 PM
T, W, F, AS 10:00 AM - 5:00 PM

ADAMS COUNTY
PUBLIC LIBRARY
COMMERCE CITY BRANCH
7185 MONACO STREET
COMMERCE CITY, CO 80022
(303) 287-0063
HOURS: M-F 8:00 AM - 4:30 PM

#SA
III. SITE ACTIVITIES SINCE THE JUNE 1988 ROD

IN JANUARY OF 1989, SITE ACCESS WAS RESTRICTED THROUGH CONSTRUCTION OF A FENCE. IN THE EARLY PART OF THE SAME YEAR, EPA SOUGHT ACCESS TO THE SITE TO IMPLEMENT THE REMEDY OF THE JUNE 1988 ROD, BUT WAS DENIED BY BIC DUE TO INDEMNIFICATION CONCERNS. IN MARCH OF 1989, EPA REQUESTED AND WAS GRANTED AN ORDER IN AID OF ACCESS FROM THE FEDERAL DISTRICT COURT.

IN AUGUST 1989, THE DESIGN TO IMPLEMENT THE JUNE 1988 ROD WAS FINISHED. THE DESIGN INDICATED THAT INCINERATING THE CONTENTS OF THE MAIN AND SECONDARY IMPOUNDMENTS ON-SITE MIGHT COST THREE TO FIVE TIMES MORE THAN WAS ORIGINALLY ESTIMATED DUE TO CHANGES IN THE INCINERATION MARKET AND INCREASED TRANSPORTATION COSTS. COSTS FOR INCINERATING THE SLUDGES AND OIL, AND TREATING THE WATER IN THE IMPOUNDMENTS WERE ESTIMATED TO BE $1.4 - 2.2 MILLION IN THE JUNE 1988 ROD WHILE THE CORPS OF ENGINEERS ESTIMATED THE COSTS TO BE $9 - 11 MILLION IN THEIR FINAL DESIGN DOCUMENT IN AUGUST 1989. OVER THE 14-MONTH PERIOD BETWEEN THE ROD SIGNING AND THE FINAL DESIGN DOCUMENT, THE MARKET FOR MOBILE THERMAL INCINERATORS INCREASED FROM AN AVERAGE $550 PER CUBIC YARD TO ABOUT $2,750 PER CUBIC YARD. PART OF THIS INCREASE WAS ALSO A RESULT OF HIGHER TRANSPORTATION COSTS TO MOBILIZE AND DEMOBILIZE THE INCINERATION OPERATIONS.

IN JANUARY OF 1990, BIC REQUESTED RECONSIDERATION OF THE PORTION OF THE JUNE 1988 ROD CALLING FOR INCINERATION OF THE SLUDGES AT THE SITE. EPA DENIED BIC'S REQUEST IN APRIL 1990. HOWEVER, SINCE THE VOLUME OF SOILS WAS SIGNIFICANTLY GREATER THAN EXPECTED, EPA DECIDED TO DEFER REMOVAL OR TREATMENT OF THE VISUALLY CONTAMINATED SOILS (ROD ACTION NO. 3) TO OU 2. THIS DEFERMENT FURTHER IMPACTED THE ESTIMATED COSTS OF INCINERATING THE CONTENTS OF THE IMPOUNDMENTS. LOSS OF ECONOMY OF SCALE OCCURRED DUE TO THE RELATIVELY SMALL VOLUME OF MATERIAL TO BE INCINERATED AT THE SITE.

IN MAY 1990, BIC FILED A PETITION FOR RECONSIDERATION OF THE JUNE 1988 ROD WITH THE REGIONAL ADMINISTRATOR OF REGION VIII. EPA DECIDED TO RECONSIDER THE JUNE 1988 ROD DUE TO THE COST INFORMATION ACQUIRED DURING DESIGN OF THE REMEDY AND NEW TECHNICAL DATA ON THE INTERACTION OF CONTAMINANTS AND GROUNDWATER FROM THE OU 2 RI/FS ACTIVITIES. EPA HAD DETERMINED THAT REMOVAL AND STORAGE OF THE SLUDGES WOULD BE NECESSARY UNDER ANY ALTERNATIVE SELECTED. AS A RESULT, EPA REQUESTED AND BIC AGREED TO PROCEED WITH REMOVAL OF THE SLUDGES FROM THE TWO IMPOUNDMENTS FOR TEMPORARY STORAGE. THE SLUDGE REMOVAL OPERATIONS WERE CONDUCTED IN OCTOBER AND NOVEMBER 1990 AND THE SLUDGES ARE CURRENTLY STORED IN TWO ON-SITE LINED CELLS.

#DA

IV. DESCRIPTION OF THE ALTERNATIVES

THE SPECIFIC REMEDIAL ACTION OBJECTIVES FOR SLUDGES IN THE IMPOUNDMENTS REMAIN THE SAME AS STATED IN THE JUNE 1988 ROD. THESE ARE: 1) ADDRESSING THE SLUDGE AS THE GREATEST CONCENTRATION OF CONTAMINANTS ON-SITE, I.E., SOURCE CONTROL; AND 2) MITIGATING RISKS OR PATHWAYS FOR INGESTION AND INHALATION OF, AND DIRECT CONTACT WITH, THE SLUDGES. IN ADDITION TO THE REMEDIAL ALTERNATIVES, THE NCP REQUIRES THAT A NO-ACTION ALTERNATIVE BE CONSIDERED AT EVERY SITE. THE NO-ACTION ALTERNATIVE SERVES PRIMARILY AS A POINT OF COMPARISON FOR OTHER ALTERNATIVES. AS IN THE JUNE 1988 ROD, THE NO-ACTION ALTERNATIVE REMAINS UNACCEPTABLE BECAUSE IT IS NOT PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT. EPA'S REEVALUATION OF THE REMEDIAL ALTERNATIVES IDENTIFIED THREE ALTERNATIVES THAT ARE COMPATIBLE WITH THE REMEDIAL ACTION OBJECTIVES AND CURRENT SITE CONDITIONS. THE THREE ALTERNATIVES INCLUDE: 1) ON-SITE INCINERATION, WHICH WAS THE REMEDY SELECTED IN THE JUNE 1988 ROD; 2) OFF-SITE INCINERATION; AND 3) OFF-SITE RECLAMATION, WITH INCINERATION OF RESIDUES. LONG-TERM MONITORING COSTS FOR ALL ALTERNATIVES WILL BE INCORPORATED INTO THE MONITORING PROGRAM FOR OU 2.

THE AMOUNT OF SLUDGES NEEDING REMEDIATION IS APPROXIMATELY 950 CUBIC YARDS OF SOLID SLUDGE, CURRENTLY STORED IN THE SOLID STORAGE CELL AND APPROXIMATELY 1,220 CUBIC YARDS OF LIQUID SLUDGE, STORED IN THE LIQUID STORAGE CELL. IN ADDITION, ABOUT 500 GALLONS OF OIL COLLECTED FROM THE SLUDGE STOCKPILE AND FROM OIL COLLECTED IN THE SUMP OF THE SOLID STORAGE CELL HAVE BEEN STORED IN 55-GALLON DRUMS ON-SITE. APPROXIMATELY 50 CUBIC YARDS OF DEBRIS (FENCE POSTS, RAILROAD RAILS AND TIES, POLES, PIPES, SCRAP METAL, AND A MATTRESS) WERE STOCKPILED (RETEC, 1990B) AND WILL BE REMEDIATED AS PART OF OU 2.

1) ON-SITE INCINERATION (ORIGINALLY SELECTED IN JUNE 1988 ROD)

THIS ALTERNATIVE FOR TREATMENT IS UNCHANGED FROM THE JUNE 1988 ROD EXCEPT THAT THE PREVIOUS RANGE OF COSTS HAVE INCREASED DUE TO MARKET CONDITIONS. THE CURRENT RANGE OF COSTS IS BASED ON ESTIMATES PROVIDED TO EPA BY THE COE IN THEIR FINAL DESIGN DOCUMENTS AND BY BIC IN THEIR PETITION FOR EPA TO RECONSIDER THE JUNE 1988 ROD (HOLLAND & HART, 1990). THE ESTIMATED COST FOR THIS ALTERNATIVE IS $4,530,000 (FROM THE BIC PETITION) - $11,000,000 (FROM THE COE). THESE COSTS ARE DETAILED IN THE SUMMARY DOCUMENT (EPA, 1991). OPERATION AND MAINTENANCE COSTS ARE

MINIMAL DUE TO THE SHORT DURATION OF THIS REMEDY. LONG-TERM MONITORING COSTS WOULD BE PART OF THE ROD FOR OU 2. THE SLUDGE IN BOTH THE LIQUID AND SOLID STORAGE CELLS WOULD BE REMOVED AND INCINERATED ON-SITE USING A MOBILE THERMAL INCINERATOR. SOME STABILIZATION OF THE SLUDGE MIGHT BE REQUIRED TO FACILITATE HANDLING AND LOADING OF THE SLUDGE. FOLLOWING REMOVAL OF THE SLUDGES, THE SURFACE IMPOUNDMENTS INCLUDING THE LIQUID AND SOLID STORAGE CELLS WOULD BE CLOSED AS PART OF THE REMEDY SELECTED FOR OU 2. IT IS EXPECTED THAT THIS ALTERNATIVE WOULD TAKE SIX TO EIGHT MONTHS TO COMPLETE.

STATE AND FEDERAL REGULATIONS ON INCINERATION OF RCRA/HAZARDOUS WASTE FOUND AT 6 CCR 1007-3, PART 264 SUBPART 0 AND 40 CFR 264 SUBPART 0 (264.340-352), RESPECTIVELY, AND 40 CFR 270.62 WOULD BE APPLICABLE TO ON-SITE INCINERATION OF THE SLUDGES WHICH ARE K001 LISTED HAZARDOUS WASTES. SIMILARLY, RCRA LAND DISPOSAL RESTRICTIONS (LDRS) WOULD APPLY TO DISPOSAL OF TREATMENT RESIDUES, WHICH WILL NEED TO MEET TREATMENT STANDARDS IN 40 CFR 268 SUBPART D. THE SUBSTANTIVE REQUIREMENTS OF THE STATE PARTICULATE EMISSION CONTROL REGULATION FOR INCINERATORS (5 CCR 1001-3, REGULATION NO. 1, III. B) WOULD ALSO APPLY TO OPERATING AND CONTROLLING THE INCINERATOR.

THE RESIDUE (ASH) FROM THIS PROCESS WOULD BE TESTED TO ASSURE THAT IT MEETS TREATMENT STANDARDS FOR LAND DISPOSAL AND THEN WOULD BE SHIPPED TO A PERMITTED HAZARDOUS WASTE LANDFILL. FOR THE RESIDUE FROM INCINERATION OF K001 WASTES TO MEET THE STANDARDS, THE MAXIMUM FOR ANY SINGLE GRAB SAMPLE MUST NOT EXCEED CONCENTRATIONS LISTED BELOW IN TABLE 1.

2) OFF-SITE INCINERATION

OFF-SITE INCINERATION WAS EVALUATED IN THE JUNE 1988 ROD. HOWEVER, THIS ALTERNATIVE WAS NOT SELECTED BECAUSE AT THAT TIME ITS COST OF $4,800,000 WAS GREATER THAN ON-SITE INCINERATION DUE TO TRANSPORTATION OF THE MATERIALS TO THE OFF-SITE INCINERATOR. THE PRESENT COST FOR OFF-SITE INCINERATION OF THE SLUDGE FROM THE STORAGE CELLS IS $4,750,000 BASED ON INFORMATION PROVIDED IN THE BIC PETITION (HOLLAND & HART, 1990). BECAUSE TREATMENT WOULD OCCUR OFF-SITE, OPERATION AND MAINTENANCE COSTS ARE INCLUDED IN THE CAPITAL COSTS. LONG-TERM MONITORING COSTS WILL BE PART OF THE SUBSEQUENT ROD FOR OU 2. THE TREATMENT METHOD FOR THIS ALTERNATIVE WOULD BE SIMILAR TO ON-SITE INCINERATION EXCEPT THAT SLUDGE IN BOTH THE LIQUID AND SOLID STORAGE CELLS WOULD BE REMOVED AND SHIPPED TO AN OFF-SITE INCINERATOR. THE SLUDGE WOULD BE SOLIDIFIED AS NEEDED FOR TRANSPORT. OFF-SITE INCINERATION WOULD BE PERFORMED AT THE NEAREST PERMITTED INCINERATOR. THE SURFACE IMPOUNDMENTS INCLUDING THE LIQUID AND SOLID STORAGE CELLS WOULD BE CLOSED AS PART OF THE OU 2 FINAL REMEDY. THIS ALTERNATIVE WOULD BE COMPLETED IN APPROXIMATELY SIX MONTHS.

FEDERAL REGULATIONS ON INCINERATION OF RCRA/HAZARDOUS WASTES ARE FOUND AT 40 CFR 264 SUBPART 0 (264.340-351) AND 40 CFR 270.62. UNDER THESE REGULATIONS, INCINERATORS BURNING K001 SLUDGE ARE REQUIRED TO ACHIEVE A DESTRUCTION REMOVAL EFFICIENCY OF 99.99 PERCENT FOR EACH PRINCIPAL ORGANIC HAZARDOUS CONSTITUENT (INCLUDING DIOXIN). IN ACCORDANCE WITH EPA OFF-SITE POLICY (OSWER DIRECTIVE 9834.11A), A RCRA FACILITY ASSESSMENT (RFA) OR EQUIVALENT INVESTIGATION REQUIREMENT MUST BE MET AT THE RCRA TREATMENT FACILITY IN ORDER FOR CERCLA WASTES TO BE ACCEPTED AT THE FACILITY. LDRS AS SPECIFIED IN TABLE 1 WOULD APPLY TO DISPOSAL OF TREATMENT RESIDUES (ASH). RCRA REQUIREMENTS (40 CFR 262 AND 263) WOULD APPLY TO MANIFESTING AND TRANSPORTING THE WASTE. DEPARTMENT OF TRANSPORTATION (DOT) REQUIREMENTS ARE INCORPORATED BY REFERENCE IN THE RCRA GENERATOR/TRANSPORTER REGULATIONS.

3) OFF-SITE RECLAMATION AND INCINERATION OF RESIDUES

THE OFF-SITE RECLAMATION ALTERNATIVE PROPOSED IN THIS ROD AMENDMENT

DIFFERS SIGNIFICANTLY FROM THE RECLAMATION ALTERNATIVE EVALUATED IN THE JUNE 1988 ROD. AS EVALUATED IN THE JUNE 1988 ROD, THE SLUDGE WAS TO BE SEPARATED INTO CREOSOTE, WATER, AND SOLIDS IN AN ON-SITE CENTRIFUGE. THE CREOSOTE WOULD THEN HAVE BEEN SOLD ON THE OPEN MARKET, THE WATER WOULD HAVE BEEN EVAPORATED, AND THE SOLIDS DISPOSED OFF-SITE WITHOUT TREATMENT. EPA REJECTED THIS ALTERNATIVE BECAUSE ON-SITE INCINERATION, AT THAT TIME, WAS COMPARABLE IN COST, THERE WAS NO ASSURANCE THAT THE CREOSOTE RECOVERED VIA THIS METHOD WOULD BE SALEABLE, THERE WAS NO ASSURANCE DIOXINS WOULD BE PROPERLY MANAGED, AND THE SOLIDS WERE TO BE LAND DISPOSED WITHOUT TREATMENT.

THE OFF-SITE RECLAMATION ALTERNATIVE EVALUATED IN THIS ROD AMENDMENT ADDRESSES THE CONCERNS EXPRESSED IN THE EVALUATION OF THE RECLAMATION ALTERNATIVE IN THE JUNE 1988 ROD. THE RANGE OF COSTS FOR THIS ALTERNATIVE ARE ESTIMATED TO BE FROM $2.06 - $2.19 MILLION BASED ON PRELIMINARY INFORMATION PROVIDED BY BIC (RETEC, 1991). OPERATION AND MAINTENANCE COSTS ARE INCLUDED IN THE CAPITAL COSTS BECAUSE TREATMENT WOULD OCCUR OFF SITE. LONG-TERM MONITORING COSTS WILL BE PART OF THE ROD FOR OU 2.

THE SLUDGE IN BOTH THE LIQUID AND SOLID STORAGE CELLS WOULD BE REMOVED, PREPARED AND SHIPPED TO A PERMITTED RECYCLER WITH A PROVEN RECORD OF RECYCLING K001 SLUDGE. THE ESTIMATED RECOVERY RATE IS 80 PERCENT. THE SLUDGES WOULD BE EXCAVATED AND HAULED TO AN ON-SITE MIXING TANK FOR HEATING WITH A SOLVENT (I.E., CREOSOTE) TO MAKE THE MIXTURE PUMPABLE. THE MIXTURE WOULD THEN BE TRANSFERRED AND PLACED IN RAIL TANK CARS. NEXT, THE MIXTURE WOULD BE SHIPPED TO THE PERMITTED RECYCLER. AT THE FACILITY, THE MIXTURE WOULD BE FILTER PRESSED, DEHYDRATED, DISTILLED AND BLENDED WITH VIRGIN CREOSOTE (I.E., CREOSOTE WITH NO PCP OR DIOXINS). THE FINAL RECYCLED PRODUCT WOULD BE CLASSIFIED AS A CREOSOTE CONTAINING PCP AND DIOXINS TO BE USED BY WOOD TREATERS ONLY.

THE RESIDUES FROM THE RECYCLING PROCESS, WHICH CONTAIN PCP AND DIOXINS, WOULD BE TREATED TO LDR STANDARDS IN AN INCINERATOR PERMITTED TO BURN K001 SLUDGE. THE INCINERATOR ASH WOULD BE DISPOSED IN A PERMITTED RCRA LANDFILL. THE SURFACE IMPOUNDMENTS, INCLUDING THE LIQUID AND SOLID STORAGE CELLS, WOULD BE CLOSED AS PART OF THE REMEDY FOR OU 2. COMPLETION OF THIS ALTERNATIVE WOULD TAKE SIX TO EIGHT MONTHS.

PRODUCT FROM THE RECYCLING PROCESS WOULD NOT BE SUBJECT TO RCRA REGULATIONS. IN ACCORDANCE WITH EPA OFF-SITE POLICY (OSWER DIRECTIVE 9834.11A), A RCRA FACILITY ASSESSMENT (RFA) OR EQUIVALENT INVESTIGATION REQUIREMENT MUST BE MET AT THE RECYCLING FACILITY IN ORDER FOR CERCLA WASTES TO BE ACCEPTED AT THE FACILITY. RCRA TANK, MANIFEST AND TRANSPORT REQUIREMENTS WOULD APPLY AS WELL AS REGULATIONS FOR INCINERATION AS CITED PREVIOUSLY FOR ALTERNATIVES 1 AND 2. LDRS AS SPECIFIED IN TABLE 1 WOULD APPLY TO TREATED RESIDUES (ASH FROM INCINERATION) FROM REPROCESSING THE K001 SLUDGE. THIS REMEDY WOULD BE REQUIRED TO MEET ALL LOCAL AND STATE AIR EMISSIONS STANDARDS. THIS REMEDY IS EASILY IMPLEMENTED SINCE THE SLUDGE IS ALREADY IN STORAGE CELLS WHICH FACILITATE REMOVAL AND TRANSPORTATION FROM THE SITE.

#EA
V. EVALUATION OF THE ALTERNATIVES

OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

THE CRITERION ADDRESSES WHETHER A REMEDY PROVIDES ADEQUATE PROTECTION AND DESCRIBES HOW RISKS POSED THROUGH EACH PATHWAY ARE ELIMINATED, REDUCED, OR CONTROLLED THROUGH TREATMENT, ENGINEERING CONTROLS, OR INSTITUTIONAL CONTROLS. ALL THE ALTERNATIVES ARE PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT.

ALTERNATIVES 1 AND 2 ACHIEVE PROTECTION BY REMOVAL OF THE SLUDGES FROM THE TEMPORARY STORAGE CELLS AND DESTRUCTION, BY INCINERATION. ALTERNATIVE 3 ACHIEVES PROTECTION BY REMOVAL OF THE SLUDGES, RECLAMATION OF USABLE PRODUCTS FROM THE SLUDGE, AND DESTRUCTION, BY INCINERATION, OF THE RESIDUES FROM RECLAMATION.

THE ANALYSIS OF THIS CRITERIA IN THE JUNE 1988 ROD STATED THAT RECLAMATION MAY NOT BE PROTECTIVE. OFF-SITE RECLAMATION AS PROPOSED IN THIS ROD AMENDMENT WOULD BE PROTECTIVE BECAUSE THE FINAL RECYCLED PRODUCT WOULD BE SOLD TO AND USED BY WOOD TREATERS ONLY. ALSO, ANY RESIDUES WOULD BE TREATED TO MEET LDR STANDARDS BEFORE DISPOSAL.

COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

THIS CRITERION ADDRESSES WHETHER A REMEDY WILL MEET ALL OF THE ARARS OF OTHER FEDERAL AND STATE ENVIRONMENTAL LAWS. ALL ALTERNATIVES WILL MEET ALL ARARS.

THE JUNE 1988 ROD STATED THAT IT WAS QUESTIONABLE WHETHER RECLAMATION WOULD COMPLY WITH ARARS. IN PARTICULAR, IT WAS UNCLEAR WHETHER LDRS WOULD BE MET. SINCE THIS IS AN OFF-SITE ACTIVITY THE LDR STANDARDS ARE NOT TECHNICALLY ARARS. HOWEVER, LDRS PERTAIN TO THE OFF-SITE ACTION AND MUST BE MET. RECLAMATION AS PROPOSED IN THE JUNE 1988 ROD DID NOT SPECIFY THAT THE RESIDUES WOULD BE TREATED THEREBY RESULTING IN UNCERTAINTY OVER WHETHER LDRS WOULD BE MET. OFF-SITE RECLAMATION AS PROPOSED IN THIS ROD AMENDMENT INCLUDES TREATMENT OF THE RECLAMATION RESIDUES BY INCINERATION TO COMPLY WITH ANY LDRS.

LONG-TERM EFFECTIVENESS AND PERMANENCE

THIS CRITERION REFERS TO EXPECTED RESIDUAL RISK AND THE ABILITY OF A REMEDY TO MAINTAIN RELIABLE PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT OVER TIME ONCE CLEANUP GOALS HAVE BEEN MET.

ALL ALTERNATIVES PROVIDE LONG-TERM EFFECTIVENESS AND PERMANENCE BY REMOVAL AND DESTRUCTION OF THE SLUDGES OR RECLAMATION OF THE SLUDGES INTO A USABLE PRODUCT, WITH ANY RESIDUES FROM THE RECLAMATION PROCESS BEING DESTROYED BY INCINERATION.

REDUCTION IN TOXICITY, MOBILITY, AND VOLUME THROUGH TREATMENT

THIS CRITERION REFERS TO THE ANTICIPATED PERFORMANCE OF THE TREATMENT TECHNOLOGIES A REMEDY MAY EMPLOY. ALL THREE ALTERNATIVES INVOLVE TREATMENT METHODS WHICH SIGNIFICANTLY REDUCE THE TOXICITY, MOBILITY, AND VOLUME OF THE SLUDGES.

ALTERNATIVES 1 AND 2 EMPLOY DESTRUCTION OF THE CONTAMINANTS AS A PRINCIPAL ELEMENT. THE DESTRUCTION EFFICIENCY WILL BE GREATER THAN 99 PERCENT. ALTERNATIVE 3 EMPLOYS RECLAMATION AS THE PRINCIPAL ELEMENT WITH DESTRUCTION OF RESIDUES AS A SECONDARY ELEMENT. IT IS ESTIMATED THAT 80 PERCENT OF THE SLUDGE WILL BE RECLAIMED. THE DESTRUCTION EFFICIENCY FOR THE RESIDUES WILL BE GREATER THAN 99 PERCENT. ALL THE ALTERNATIVES ARE ESSENTIALLY EQUIVALENT IN REDUCING TOXICITY, MOBILITY AND VOLUME.

SHORT-TERM EFFECTIVENESS

THIS CRITERION ADDRESSES THE PERIOD OF TIME NEEDED TO ACHIEVE PROTECTION AND ANY ADVERSE EFFECTS ON HUMAN HEALTH AND THE ENVIRONMENT THAT MAY BE POSED DURING THE CONSTRUCTION AND IMPLEMENTATION PERIOD, UNTIL CLEANUP GOALS ARE ACHIEVED. ALL THREE ALTERNATIVES CREATE SOME SHORT-TERM RISK IN DISTURBING AND HANDLING THE SLUDGES. ALTERNATIVE 3 INVOLVES RISKS ASSOCIATED WITH ON-SITE PREPARATION OF THE SLUDGES FOR TRANSPORTATION

AND RECLAMATION. THIS RISK IS BELIEVED TO BE MINIMAL BECAUSE THE ON-SITE WORK ONLY INVOLVES HEATING THE SLUDGES AND CREOSOTE AT LOW TEMPERATURES AND NO SIGNIFICANT VOLATILIZATION WOULD OCCUR. ALTERNATIVES 2 AND 3 INVOLVE RISKS ASSOCIATED WITH OFF-SITE TRANSPORTATION OF THE SLUDGES. THESE RISKS ARE BELIEVED TO BE MINIMAL GIVEN THE CHARACTERISTICS OF THE SLUDGES AND THE FACT THAT TRANSPORTATION OF HAZARDOUS WASTE IS CARRIED ON DAILY IN THE UNITED STATES WITH FEW ACCIDENTS. ALL ALTERNATIVES INVOLVE RISKS ASSOCIATED WITH AIR EMISSIONS WHEN THE WASTES OR RECLAMATION RESIDUES ARE INCINERATED. HOWEVER, ALL ALTERNATIVES WOULD BE REQUIRED TO MEET LOCAL AND STATE AIR EMISSION STANDARDS. EACH ALTERNATIVE WOULD REQUIRE SIX TO EIGHT MONTHS TO IMPLEMENT. ALL THE ALTERNATIVES HAVE SIMILAR SHORT-TERM RISKS.

IMPLEMENTABILITY

THIS CRITERION ADDRESSES THE TECHNICAL AND ADMINISTRATIVE FEASIBILITY OF THE REMEDY, INCLUDING AVAILABILITY OF MATERIALS AND SERVICES TO IMPLEMENT A PARTICULAR OPTION. ALL THE ALTERNATIVES ARE TECHNICALLY IMPLEMENTABLE.

THE IMPLEMENTATION OF ALTERNATIVE 2, OFF-SITE INCINERATION, COULD BE DELAYED BECAUSE OF THE UNAVAILABILITY OF AN OFF-SITE INCINERATION FACILITY. ONLY RECENTLY, THE TWO FACILITIES THAT COULD HAVE INCINERATED THE SLUDGES BECAME UNAVAILABLE AND IT IS UNKNOWN IF EITHER OF THESE FACILITIES WILL BE AVAILABLE IN THE NEAR FUTURE. IT IS EXPECTED THAT A NEW INCINERATOR WILL COME ON-LINE IN THE NEAR FUTURE. HOWEVER, IF THAT FACILITY DOES NOT BECOME AVAILABLE THE SLUDGES WOULD HAVE TO BE HELD IN THE STORAGE CELLS UNTIL A FACILITY BECOMES AVAILABLE.

AT THE PRESENT TIME, EPA HAS IDENTIFIED ONLY ONE FACILITY IN THE COUNTRY THAT CAN RECLAIM THE SLUDGES. THIS IS THE ALLIED SIGNAL FACILITY IN BIRMINGHAM, ALABAMA. THIS FACILITY HAS TENTATIVELY BEEN IDENTIFIED AS ACCEPTABLE UNDER EPA'S OFF-SITE POLICY TO ACCEPT CERCLA WASTES.

COST

COST FACTORS INCLUDE ESTIMATED CAPITAL AND OPERATION AND MAINTENANCE COSTS, AS WELL AS PRESENT WORTH COSTS. ALTERNATIVE 3, OFF-SITE RECLAMATION, IS THE LEAST COSTLY OF THE THREE ALTERNATIVES AT $2.06 - $2.19 MILLION. ALTERNATIVE 2, OFF-SITE INCINERATION, IS THE NEXT LEAST COSTLY AT $4.75 MILLION. ALTERNATIVE 1, ON-SITE INCINERATION, IS THE MOST COSTLY AT $4.5 TO 11 MILLION.

STATE ACCEPTANCE

THE STATE OF COLORADO AGREES WITH THE REMEDY SELECTED BY EPA, PROVIDED THAT A FACILITY CAN BE FOUND THAT IS PERMITTED TO ACCEPT THE WASTE, AND THAT THE FACILITY HAS NO ONGOING SIGNIFICANT ENVIRONMENTAL PROBLEMS. EPA SHALL ASSURE THAT THE ALLIED SIGNAL FACILITY MEETS THESE CONDITIONS AS REQUIRED BY EPA'S OFF-SITE POLICY PRIOR TO SHIPMENT OF ANY WASTES.

COMMUNITY ACCEPTANCE

THIS CRITERION ADDRESSES THE PUBLIC'S GENERAL RESPONSE TO THE ALTERNATIVES DESCRIBED IN THE PROPOSED PLAN. THE RESIDENTS INTERVIEWED SUPPORTED EITHER OF THE OFF-SITE ALTERNATIVES. THE RESIDENTS SPECIFICALLY OPPOSED ON-SITE INCINERATION.

NEW SELECTED REMEDY - OFF-SITE RECLAMATION

BASED ON THE INFORMATION AVAILABLE FOLLOWING THE JUNE 1988 ROD AND EPA'S RECONSIDERATION OF THE TREATMENT ALTERNATIVES FOR THE SLUDGES, EPA HAS

SELECTED OFF-SITE RECLAMATION (ALTERNATIVE 3) AS THE REMEDY FOR TREATING THE SLUDGES AT THE BWP SITE. THE SELECTION OF THIS REMEDY IS BASED UPON THE COMPARATIVE ANALYSIS OF ALTERNATIVES PRESENTED ABOVE, AND PROVIDES THE BEST BALANCE OF TRADEOFFS WITH RESPECT TO THE NINE EVALUATION CRITERIA. IT IS ESTIMATED THAT 950 CUBIC YARDS OF SOLID SLUDGE AND 1,220 CUBIC YARDS OF LIQUID SLUDGE WILL BE REMOVED FROM THE STORAGE CELLS AND TRANSPORTED, ALONG WITH THE 500 GALLONS OF OIL COLLECTED FROM THE SLUDGE, TO A PERMITTED FACILITY TO RECOVER CREOSOTE FOR USE AT WOOD TREATING FACILITIES. PRELIMINARY COST ESTIMATES FOR THE SELECTED REMEDY WERE PREPARED BY BIC (RETEC, 1991) AND VERIFIED BY EPA. THESE COSTS ARE SUMMARIZED IN TABLE 2.

THE OVERALL OBJECTIVE OF ANY REMEDIAL ACTION AT THE BWP SITE IS TO PROTECT HUMAN HEALTH AND THE ENVIRONMENT. ANY REMEDIAL ACTION MUST ALSO COMPLY WITH OTHER REQUIREMENTS OF CERCLA (AS AMENDED BY SARA) AND THE NCP.

SPECIFIC GOALS FOR REMEDIATION OF SLUDGE AT THE SITE INVOLVE THE FOLLOWING:

1. ADDRESSING THE CONTENTS OF THE IMPOUNDMENTS AS THE GREATEST CONCENTRATION OF CONTAMINANTS ON THE SITE (I.E., SOURCE CONTROL);

2. MITIGATING THE RISKS/PATHWAYS ASSOCIATED WITH A) INGESTION OF HAZARDOUS SUBSTANCES IN THE IMPOUNDMENTS, B) DIRECT CONTACT WITH HAZARDOUS SUBSTANCES IN THE IMPOUNDMENTS, AND C) INHALATION OF AIRBORNE HAZARDOUS SUBSTANCES.

BY REMOVING THE SLUDGES FROM THE SITE AND RECYCLING THE SLUDGE, EXPOSURE TO THE CONTAMINANTS BY INGESTION, INHALATION AND DIRECT CONTACT WILL BE ELIMINATED AND THE ASSOCIATED RISK WILL BE SIGNIFICANTLY REDUCED. FURTHERMORE, THIS WILL ELIMINATE THE MAJOR SOURCE OF CONTINUING CONTAMINATION AT THE SITE. REMEDIATION OF THE SOILS AND GROUND WATER ALREADY AFFECTED BY THE IMPOUNDMENTS WILL BE ADDRESSED AS PART OF OU 2.

#SD
VI. STATUTORY DETERMINATIONS

EPA'S PRIMARY RESPONSIBILITY AT SUPERFUND SITES IS TO SELECT REMEDIAL ACTIONS THAT ARE PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT IN ACCORDANCE WITH SECTION 121 OF CERCLA. CERCLA ALSO REQUIRES THAT THE SELECTED REMEDIAL ACTION FOR THE SITE COMPLY WITH APPLICABLE OR RELEVANT AND APPROPRIATE STANDARDS ESTABLISHED UNDER FEDERAL AND STATE ENVIRONMENTAL LAWS, UNLESS A WAIVER IS GRANTED. THE SELECTED REMEDY MUST ALSO BE COST-EFFECTIVE AND UTILIZE PERMANENT TREATMENT TECHNOLOGIES OR RESOURCE RECOVERY TECHNOLOGIES TO THE MAXIMUM EXTENT PRACTICABLE. THE STATUTE ALSO CONTAINS A PREFERENCE FOR REMEDIES THAT INCLUDE TREATMENT AS A PRINCIPAL ELEMENT. THE FOLLOWING SECTIONS DISCUSS HOW THE SELECTED REMEDY FOR TREATMENT OF THE IMPOUNDMENT SLUDGES AT THE BWP SITE MEETS THESE STATUTORY REQUIREMENTS.

PROTECTION OF HUMAN HEALTH AND ENVIRONMENT

BASED ON THE RISK ASSESSMENT DEVELOPED FOR THE SITE, EXPOSURE TO DIOXINS, PCP AND PAHS IN THE SLUDGE THROUGH INGESTION, INHALATION AND DIRECT CONTACT ARE THE PRINCIPAL RISKS ASSOCIATED WITH THE BWP SITE. THE SELECTED REMEDY WILL ELIMINATE THESE RISKS AND PROVIDE PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT BY REMOVAL OF THE SLUDGE FROM THE SITE, RECLAIMING ANY USABLE PORTION OF THE SLUDGE, AND DESTROYING BY INCINERATION, THE RESIDUES FROM RECLAMATION. THIS REMEDY WILL NOT POSE UNACCEPTABLE SHORT-TERM RISKS OR CROSS-MEDIA IMPACTS TO THE SITE, THE WORKERS, OR THE COMMUNITY.

COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS OF

OTHER LAWS

UNDER SECTION 121(D)(2) OF CERCLA, REMEDIAL ACTIONS MUST ATTAIN STANDARDS, REQUIREMENTS, LIMITATIONS, OR CRITERIA THAT ARE "APPLICABLE OR RELEVANT AND APPROPRIATE" UNDER THE CIRCUMSTANCES OF THE RELEASE AT A SITE. ALL ARARS WOULD BE MET UPON COMPLETION OF THE SELECTED REMEDY.

CHEMICAL-SPECIFIC ARARS

NO CHEMICAL-SPECIFIC ARARS WERE IDENTIFIED.

ACTION-SPECIFIC ARARS

THE RCRA TANK REGULATIONS, 40 CFR PART 264 HAVE BEEN IDENTIFIED AS ACTION-SPECIFIC ARARS FOR THE ON-SITE ACTIVITIES CONNECTED WITH THE SELECTED REMEDY. DEPENDING UPON ADDITIONAL ACTIVITIES NECESSARY FOR PREPARING THE SLUDGE FOR TRANSPORT, OTHER REQUIREMENTS MAY BE ARARS. ANY SUCH ARARS WILL BE IDENTIFIED DURING REMEDIAL DESIGN AND WOULD BE COMPLIED WITH DURING REMEDIAL ACTION.

THE FOLLOWING REQUIREMENTS APPLY TO THE OFF-SITE ACTIVITIES CONNECTED WITH THE SELECTED REMEDY. THE OFF-SITE SHIPMENT OF THE K001 SLUDGE TO THE RECYCLING FACILITY WOULD COMPLY WITH ALL APPLICABLE DEPARTMENT OF TRANSPORTATION REQUIREMENTS FOUND IN THE HAZARDOUS MATERIALS TRANSPORTATION ACT AND REGULATIONS PROMULGATED PURSUANT TO THAT ACT, 49 USC SECTIONS 1801-1806, 1808, 1811; 40 CFR PART 263; 49 CFR PARTS 171-174, AS WELL AS THE RCRA GENERATOR AND TRANSPORTER REQUIREMENTS, 40 CFR PART 262; 6 CCR 1007-3, PART 262, AND 40 CFR PART 263. DISPOSAL OF RESIDUES FROM THE RECLAMATION OF THE SLUDGES WOULD BE SUBJECT TO THE LDRS. THE RESIDUES WOULD MEET THE LDR BDAT STANDARDS (TABLE 1) BEFORE BEING LAND DISPOSED AT A PERMITTED FACILITY.

LOCATION-SPECIFIC ARARS

NO LOCATION-SPECIFIC ARARS WERE IDENTIFIED.

TO BE CONSIDERED

NO TO BE CONSIDEREDS (TBCS) WERE IDENTIFIED.

COST-EFFECTIVENESS

THE SELECTED REMEDY IS COST-EFFECTIVE. COST-EFFECTIVENESS IS DETERMINED BY EVALUATING LONG-TERM EFFECTIVENESS AND PERMANENCE, REDUCTION OF TOXICITY, MOBILITY, OR VOLUME THROUGH TREATMENT, AND SHORT-TERM EFFECTIVENESS TO DETERMINE OVERALL EFFECTIVENESS. OVERALL EFFECTIVENESS IS THEN COMPARED TO COST TO DETERMINE COST-EFFECTIVENESS. ALL THREE ALTERNATIVES EVALUATED IN THIS ROD AMENDMENT ARE COMPARABLE IN TERMS OF OVERALL EFFECTIVENESS. THEREFORE, OFF-SITE RECLAMATION, WHICH IS THE LEAST EXPENSIVE ALTERNATIVE AT A COST OF $2.06 - $2.19 MILLION IS THE MOST COST-EFFECTIVE OPTION.

UTILIZATION OF PERMANENT SOLUTIONS AND ALTERNATIVE TREATMENT TECHNOLOGIES OR RESOURCE RECOVERY TECHNOLOGIES TO THE MAXIMUM EXTENT PRACTICABLE

EPA BELIEVES THE SELECTED REMEDY REPRESENTS THE MAXIMUM EXTENT TO WHICH PERMANENT SOLUTIONS AND TREATMENT TECHNOLOGIES CAN BE UTILIZED IN A COST-EFFECTIVE MANNER FOR TREATMENT OF THE SLUDGES AT THE BWP SITE. OF THE ALTERNATIVES THAT ARE PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT AND COMPLY WITH ARARS, EPA HAS DETERMINED THAT THE SELECTED REMEDY PROVIDES THE BEST BALANCE OF TRADE-OFFS IN TERMS OF LONG-TERM EFFECTIVENESS AND PERMANENCE; REDUCTION IN TOXICITY, MOBILITY OR VOLUME

ACHIEVED THROUGH RESOURCE RECOVERY AND TREATMENT; SHORT-TERM EFFECTIVENESS; IMPLEMENTABILITY; AND COST, AND ALSO CONSIDERING THE STATUTORY PREFERENCE FOR TREATMENT AS A PRINCIPAL ELEMENT, AND CONSIDERING STATE AND COMMUNITY ACCEPTANCE.

ALTHOUGH ALL OF THE ALTERNATIVES ARE PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT AND COMPLY WITH ARARS, AND WILL ACHIEVE SIGNIFICANT REDUCTIONS OF TOXICITY, MOBILITY AND VOLUME, THERE ARE SIGNIFICANT DIFFERENCES IN THE COST OF THE ALTERNATIVES. OFF-SITE RECLAMATION IS THE LEAST COSTLY AT LESS THAN HALF THE COST OF OFF-SITE INCINERATION AND FIVE TIMES LESS THAN THE HIGHEST ESTIMATES OF THE COST FOR ON-SITE INCINERATION. THEREFORE, THE CRITERION THAT PROVIDES THE BASIS FOR THIS SELECTION DECISION IS COST. THE SELECTED REMEDY IS THE LEAST COSTLY OF EQUALLY PROTECTIVE ALTERNATIVES THAT WERE RECONSIDERED.

STATE AND COMMUNITY ACCEPTANCE

THE STATE OF COLORADO CONCURS WITH THE SELECTED REMEDY. THE PROPOSED PLAN FOR THE BWP SITE WAS RELEASED FOR PUBLIC COMMENT IN JANUARY 1991. THE PROPOSED PLAN IDENTIFIED OFF-SITE RECLAMATION AS THE PREFERRED REMEDY FOR THE SLUDGES. THE COMMUNITY ACCEPTS THIS ALTERNATIVE. EPA REVIEWED ALL WRITTEN AND VERBAL COMMENTS SUBMITTED DURING THE PUBLIC COMMENT PERIOD. UPON REVIEW OF THESE COMMENTS, EPA DETERMINED THAT NO SIGNIFICANT CHANGE TO THE REMEDY ORIGINALLY IDENTIFIED IN THE PROPOSED PLAN WAS NECESSARY. THE RESPONSIVENESS SUMMARY FOR THIS ROD AMENDMENT PROVIDES MORE DETAIL REGARDING THE COMMENTS RECEIVED AND EPA'S RESPONSES TO THESE COMMENTS.

PREFERENCE FOR TREATMENT AS A PRINCIPAL ELEMENT

BY REMOVING THE SLUDGE FROM THE SITE AND RECOVERING THE USEFUL COMPONENTS OF THE SLUDGE THROUGH A REPROCESSING FACILITY, THE SELECTED REMEDY ADDRESSES THE PRINCIPAL THREAT OF INHALATION, INGESTION AND DIRECT CONTACT OF CONTAMINANTS IN THE SLUDGE THROUGH THE USE OF TREATMENT TECHNOLOGIES. RESIDUES FROM THE RECLAMATION PROCESS WILL ALSO BE TREATED PRIOR TO DISPOSAL. THEREFORE, THE SELECTED REMEDY SATISFIES THE STATUTORY PREFERENCE FOR REMEDIES THAT EMPLOY TREATMENT AS A PRINCIPAL ELEMENT.

#DMC
VII. DOCUMENTATION OF MINOR CHANGES

THE REMEDY SELECTED IN THIS ROD AMENDMENT, ALTERNATIVE 3 - OFF-SITE RECLAMATION, WAS THE PREFERRED ALTERNATIVE PRESENTED IN THE PROPOSED PLAN. HOWEVER, THE COST OF $2,720,000 FOR ALTERNATIVE 3 PRESENTED IN THE PROPOSED PLAN DIFFERS FROM THE COST OF $2,058,200 - $2,191,000 PRESENTED IN THIS ROD AMENDMENT. IN ADDITION, SOME ON-SITE PREPARATION OF THE SLUDGES NOT DISCUSSED IN THE PROPOSED PLAN WOULD BE REQUIRED.

THE TOTAL COST IN THE PROPOSED PLAN WAS CALCULATED BY APPLYING THE UNIT COSTS FOR OFF-SITE RECLAMATION (EXHIBIT E - ATTACHMENT 2) PROVIDED IN THE BIC PETITION (HOLLAND & HART, 1990) TO THE LIQUID SLUDGE AND APPLYING THE UNIT COSTS FOR OFF-SITE INCINERATION (EXHIBIT E - ATTACHMENT 7) TO THE SOLID SLUDGES. FOR THIS ROD AMENDMENT, THE COST FOR RECLAMATION WAS BASED ON MORE RECENT INFORMATION PROVIDED BY BIC (RETEC, 1991). THE COST FOR INCINERATING THE RESIDUES FROM THE RECYCLING PROCESS ARE INCLUDED IN THE RECLAMATION FEE CHARGED BY THE FACILITY. THIS DIFFERENCE DOES NOT CHANGE EPA'S EVALUATION OF THE ALTERNATIVES. IT FURTHER SUPPORTS THE COST-EFFECTIVENESS OF RECLAMATION.

TO FACILITATE TRANSFER OF THE SLUDGES FROM THE RAIL TANK CARS AT THE RECYCLING FACILITY, THE SLUDGES FROM THE STORAGE CELLS AT THE BWP SITE

WOULD BE HEATED AND MIXED WITH VIRGIN CREOSOTE IN AN ON-SITE TANK TO MAKE THE MIXTURE PUMPABLE BEFORE TRANSPORTATION. THIS INCREASED ON-SITE ACTIVITY MAY INCREASE SHORT-TERM RISKS. HOWEVER, ANY ADDITIONAL RISKS ASSOCIATED WITH ON-SITE PREPARATION OF THE SLUDGES ARE BELIEVED TO BE MINIMAL BECAUSE THE MIXTURE WILL BE HEATED AT LOW TEMPERATURES AND NO SIGNIFICANT VOLATILIZATION WILL OCCUR.

#REF

VIII. REFERENCES

EPA, 1990. UNILATERAL ADMINISTRATIVE ORDER FOR REMEDIAL ACTION, BRODERICK WOOD PRODUCTS SUPERFUND SITE (USEPA DOCKET NO. 91-01). USEPA, REGION VIII, OCTOBER 18, 1990.

EPA, 1991. SUMMARY DOCUMENT FOR POST-ROD ACTIVITIES. PREPARED BY JACOBS ENGINEERING GROUP INC. ON BEHALF OF USEPA, REGION VIII, JANUARY 1991.

HOLLAND & HART, 1990. PETITION FOR RE-EVALUATION FOR 1988 ROD. HOLLAND & HART, MAY 1990.

RETEC, 1990A. LETTER FROM ANN M. COLPITTS TO JACOBS ENGINEERING GROUP INC., PROJECTED COSTS TO COMPLETE THE IMPOUNDMENT SLUDGE REMOVAL AND STORAGE. RETEC, INC., DECEMBER 7, 1990.

RETEC, 1990B. REMOVAL AND STORAGE OF MAIN AND SECONDARY IMPOUNDMENT SLUDGE. RETEC, INC., DECEMBER 18, 1990.

RETEC, 1991. BRODERICK SLUDGE DISPOSITION DESIGN. RETEC, INC., PAGE

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TABLE 1
TREATMENT STANDARDS FLR LAND DISPOSAL
OF INCINERATED K001 ASH

CONSTITUENT	CONCENTRATION IN THE WASTE 1 (MG/KG)	CONCENTRATION IN THE WASTE EXTRACT 2 (MG/L)
NAPHTHALENE	1.5	NA
PENTACHLOROPHENOL	1.5	NA
PHENANTHRENE	1.5	NA
PYRENE	1.5	NA
TOLUENE	28	NA
XYLENES	33	NA
LEAD	NA	0.51

SOURCES:

1 TABLE CCW 40 CFR PART 268.43 AS REVISED IN JUNE 1990
2 TABLE CCWE 40 CFR PART 268.41 AS REVISED IN JUNE 1990

THE ABILITY OF THE INCINERATION ASH TO MEET THESE LEVELS WOULD BE CONFIRMED DURING A TEST BURN OF THE SLUDGE. IT IS POSSIBLE THAT SOME STABILIZATION OF THE ASH WOULD BE REQUIRED IF THE LEVELS ARE NOT ACHIEVABLE WITHOUT STABILIZATION.

TABLE 2
COSTS FOR OFF-SITE RECLAMATION

ITEM	BOILER AND STEAM COIL COST ($)	ELECTRIC IMMERSION HEATER COST ($)
HEATING MECHANISM	6,700	14,800
FUEL TANK	3,300	NA
MIXER	18,500	18,500
PUMPS	7,600	7,600
HOSE	8,700	8,700
POWER SCREEN	30,100	30,100
DUMP TRUCKS	4,700	4,700
FRONT END LOADER	6,200	6,200
VACUUM TRUCK	8,000	8,000
CONTROLS	2,000	2,000
SITE WORK	44,000	44,000
LABOR	105,000	105,000
BOILER FUEL (NO. 2 FUEL OIL)	6,000	NA
ELECTRICAL	21,800	139,600
WATER	200	NA
WATER TREATMENT CHEMICALS	900	NA
DIESEL FUEL	600	600
CREOSOTE	96,400	96,400
BY-PRODUCT DISPOSAL*	1,419,000	1,419,000
SUBTOTAL	1,789,700	1,904,800
CONTINGENCY (15 PERCENT)	268,500	285,700
TOTAL	2,058,200	2,191,000

* INCLUDES TRANSPORTATION AND RECLAMATION FEE.